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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/623,977 | 09/11/2000 | Peter James Hughes | 36-1359 | 1871 |

23117 7590 11/03/2005

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ARLINGTON, VA 22203

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| EXAMINER |
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ESCALANTE, OVIDIO

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| ART UNIT | PAPER NUMBER |
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2645

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/623,977

Applicant(s)

HUGHES, PETER JAMES

Examiner

Ovidio Escalante

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to applicant's response filed on September 19, 2005. **Claims 1-21** are now pending in the present application.

Response to Arguments

2. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

3. Applicant's request for reconsideration of the previous Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-7,10-13,16-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Burke et al. US Patent 6,134,223.

Regarding claim 1, Burke teaches a teleconferencing system comprising a conference bridge (primary station 105) having a multi-channel connection (103) to each of a plurality of terminal equipments (110), each multi-channel connection comprising a plurality of individual channels, (col. 4, lines 39-50; col. 26, lines 44-54), and each of the plurality of terminal equipments receiving the individual channels through a respective one of the multi-channel

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connections, (col. 28, lines 44-54), each of the terminal equipments having means to separately process each received channel to provide a plurality of outputs, (col. 27, lines 1-28), each output representing one of the other terminal equipments, (col. 27, lines 1-34).

Regarding claims 2 and 11, Burke, as applied to claims 1 and 10, teaches wherein at least one of the terminal equipments has spatialisation means to combine the outputs representing each terminal equipment to provide a spatialisation output in which each terminal equipment is represented by a virtual sound source, (col. 27, lines 1-34).

Regarding claims 4 and 13, Burke, as applied to claims 1 and 10, teaches wherein the channel representing a given terminal equipment is excluded from the output provided in that terminal, (col. 24, lines 53-64).

Regarding claim 5, Burke, as applied to claim 4, teaches means in at least one of the terminal equipments for excluding the channel from the processing, (col. 24, lines 53-64).

Regarding claim 6, Burke, as applied to claim 4, teaches means for excluding the channel from the multi-channel transmission from the bridge to the respective terminal equipment, (col. 24, lines 53-64).

Regarding claim 7, Burke, as applied to claim 1, teaches with selection means whereby the user of an individual terminal can select which channel, or channels, of the plurality of channels are to be output by the user terminal, (col. 22, lines 18-29; col. 23, lines 29-44; col. 24, lines 43-58).

Regarding claims 20 and 21, Burke, as applied to claims 1 and 10, teaches wherein each of the terminal equipments includes a de-multiplexer for separating the individual channels received through a respective one of the multi-channel connections, (fig. 6; col. 14, lines 28-48).

Regarding claims 3 and 12, Burke teaches a teleconferencing system comprising a conference bridge (primary station 105) having a multi-channel connection (103) to each of a plurality of terminal equipments (110), each multi-channel connection comprising a plurality of individual channels, (col. 4, lines 39-50; col. 26, lines 44-54), and each of the terminal equipments receiving the individual channels through a respective one of the multi-channel connections, (col. 28, lines 44-54), each of the terminal equipments having means to separately process each received channel to provide a plurality of outputs, (col. 27, lines 1-28), each output representing one of the other terminal equipments, (col. 27, lines 1-34);

wherein the conference bridge comprises a concentrator, having means to identify the currently active input channels, and to transmit only those active channels over the multi-channel connections as the plurality of individual channels, together with control information identifying the transmitted channels, (col. 24, lines 53-64; col. 22, lines 18-29; col. 27, lines 1-34).

Regarding claims 18 and 19, Burke, as applied to claims 3 and 19, teaches wherein the currently active input channels form a subset of input channels of the conference bridge, (col. 24, lines 53-64).

Regarding claims 10,16 and 17, Burke teaches a method of providing teleconferencing services to a plurality of terminal equipments, (abstract), in which a multi-channel connection is provided from a conference bridge to each of the plurality of terminal equipments, (col. 4, lines 39-50), each multi-channel connection comprising a plurality of individual independent monaural channels, (col. 4, lines 39-50; col. 26, lines 44-54), in which each of the plurality of terminal equipments receives the individual independent monaural channels through a respective one of the multi-channel connections, (col. 28, lines 44-54), and processes each received

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individual independent monaural channel separately to provide a plurality of outputs, (col. 27, lines 1-28), such output each representing a respective one of the other terminals, (col. 27, lines 1-34).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 8,9,14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burke in view of Ludwig US Patent 5,617,539.

Regarding claim 8, Burke, as applied to claims 1 and 10, does not specifically teach including echo cancellation means.

In the same field of endeavor, Ludwig teaches at least one of the terminal equipments having echo cancellation means comprising means for detecting correlations between the output signal from the at least one terminal equipment and input signals carried on individual input channels to the at least one terminal equipment, the input signals being representative of other

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terminal equipments, such correlations being indicative of acoustic feedback at the at least one terminal equipment, and means for canceling such feedback signals in the output signal, (col. 15, lines 46-55; echo cancellation requires correlating signals between the output and input order to reduce echo and feedback signal components that are output and then fed back or reflected (echoed) back into the input).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ludwig to include echo cancellation means as taught by Ludwig so that echo feedback can be attenuated.

Regarding claims 9 and 15, Burke in view of Ludwig, as applied to claims 8 and 14, does not specifically teach a plurality of adaptive filters. However, although Ludwig discloses an adaptive echo canceller producing an echo cancellation signal as discussed above, Ludwig fails to disclose using adaptive filters on each channel and feeding the output into a combiner in order to produce the echo cancellation signal.

However, "Official Notice" is taken that both the concept and advantages of using adaptive filters on each of a plurality of channels and feeding the output into a combiner would have been well-known and expected in the art of multi-channel, signal processing systems such as echo cancellers used in a conferencing environment.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add adaptive filtering on each channel with output fed into a combiner to the adaptive echo canceller disclosed by Ludwig to increase the accuracy and flexibility of adaptive filtering used in an echo canceller by individually adapting each channel because each channel is independent.

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Conclusion

9. Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

or faxed to:

(571) 273-8300, (for formal communications intended for entry)

Or:

(571) 273-7537, (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to:

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ovidio Escalante whose telephone number is 571-272-7537. The examiner can normally be reached on M-Th from 6:30AM to 4:00PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan S Tsang can be reached on 571-272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**OVIDIO ESCALANTE
PATENT EXAMINER**

Ovidio Escalante

Ovidio Escalante
Primary Patent Examiner
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October 31, 2005

O.E./oe